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ABSTRACT

Rotter's (1966) "control of reinforcement" construct is a dimension of belief or expectancy about the locus of reinforcing consequences for behavior. A generalized disposition is represented which ascribes reinforcement contingencies to either "external" (and, hence, uncontrollable) factors or to "internal" sources in which case the individual perceives himself as the effective determinant of reinforcing events. In this study, the "control of reinforcement" dimension was used to generate differential predictions about subjects' responsiveness to subtle social influence and experimenter effectiveness in producing change in verbal behavior. As predicted, "external" control Ss, selectively reinforced in a sentence construction task, evidenced significantly greater performance gains then "internal" Ss. Other differences are also reported. All differences are interpreted as being due to the internal's resistiveness to subtle forms of influence. Consideration of the control of reinforcement dimension as an important determinant of responsiveness to social influence in certain situations is emphasized. (Author/TL)

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Locus of Control of Reinforcement and Responsiveness to Social Influence[1]

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The "control of reinforcement" construct (reviewed by Lefcourt, 1966; Rotter, 1966) is a dimension of belief or expectancy about the locus of reinforcing consequences for behavior. This belief is presumed to represent a generalized or transsituational disposition to ascribe behavior-reinforcement contingencies to either "external", and hence uncontrollable, factors such as chance, fate, powerful others, or an enigmatic world, and so on, or to "internal" sources in which case the individual perceives himself as the effective determinant of reinforcing events. The most widely used and psychometrically sophisticated criterion measure for assessing expectancy for internal-external control of reinforcement is the I-E Scale (Rotter, 1966).

On the basis of the construct properties and empirically established behavioral correlates of I-E Scale score, it was hypothesized that differential predictions could be generated regarding (1) responsiveness of internal and external Ss to generalized social reinforcers, and (2) the effectiveness of internal and external Es as agents or dispensers of social reinforcing stimuli.

Rotter has pointed out that there is evidence that if "suggestions or manipulations are not to (the internal's) benefit or if he perceives them as subtle attempts to influence him without his awareness, he reacts resistively" (Rotter, 1966). In a subtle behavior shaping situation, such as the verbal conditioning situation used in this experiment, it would be pre-

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dicted that internals would be less responsive to E's influence attempts than externals, who, presumably, would base their performance on cues from E and thereby evidence strong performance gains.

Differential predictions were also made regarding the relative effectiveness of internal and external Es as reinforcing agents. It was assumed that the internal E, confident that he can control events in his environment and alert to cues from S to facilitate behavior modification, should obtain greater performance changes from his Ss than the external E, who would be inclined to set lower standards of effectiveness and be less confident and expectant of achieving response changes.

Finally, it also follows that the various E-S pairings should produce differential rates of response acquisition. In particular, it was predicted that degree of response change would be greatest for an internal E paired with an external S and least effective with external E and internal S pairings. Homogeneous pairings, internal E with internal S and external E with external S, were expected to produce intermediate acquisition rates.

Method

Subjects and Experimenters.-- A total of 68 female undergraduates in a sophomore level general psychology course volunteered as Ss. For participation in the experiment, they received credit toward required experimental hours. Twenty male volunteers, from the same class, were hired to serve as Es at an hourly wage.

Design.-- The basic design followed a 2 x 2 factorial format with I-E status of Ss and Es (dichotomized into internal and external groups) as the independent variables.

The experimental group was composed of 48 randomly assigned Ss, subdivided after the experiment into "internal" subjects (ISs) and "external" subjects (ESs) from a median division of their scores on the I-E Scale. The Scale had been administered to the entire general psychology class three months preceding the experiment so the participants would not connect the two events.

The remaining twenty Ss were assigned to the control group. The I-E scores of Ss in the experimental and control groups were similar ($\bar{X}$ = 8.85 and 9.25, respectively, P = NS) as was their modal year in school (sophomore).

Twelve males from among the pool of twenty volunteers were selected as Es to conduct the verbal conditioning because their I-E scores deviated from the overall general psychology class mean by at least two scale points. The six who scored above the mean were classified as the "external" experimenters (EEs) while the six who scored below the mean were classified as the "internal" experimenters (IEs). The EEs had an I-E score mean of 13.00 and the IEs a mean of 3.00. The remaining eight males, who scored within two points of the class average, served as interviewers for administration of an awareness questionnaire after conditioning. Nonextreme scorers were selected as interviewers because of evidence that internals are differentially effective agents of social influence (Phares, 1965; McFall, 1967) and might therefore bias awareness reports.

Eight Es (4 IEs and 4 EEs) conducted conditioning for the experimental group and four Es (2 IEs and 2 EEs) ran the control group of Ss.

Experimental Procedure.-- The experimental task, designed by Taffel (1955), consisted of having Ss construct sentences from stimulus cards. Each card

contained six random ordered pronouns (I, We, He, She, You, and They) and a different past tense verb. As part of the instructions, Ss were told that this was a "study of language and the use of words." They were asked to make up one sentence for each of the 80 stimulus cards by selecting one of the six pronouns, using it with the verb and completing the sentence any way they chose. These procedures for the task were useed with all 68 Ss.

The evening before the data was collected, Es and interviewers met separately with the senior author for training sessions intended to acquaint and give them practice with the procedures to be used in the experiment. In their training session, Es were exposed-- via an informal lecture -- to material on principles of operant conditioning relevant to the verbal conditioning situation. They were also given practice in reading instructions for the task and in tallying and reinforcing responses. The senior author supervised their practice to be sure each E attained proficiency in all aspects of the procedure.

For the first twenty trials (sentences) of experimental and control Ss, E recorded pronoun selection but said nothing. This data was used to obtain baseline rates for the use of the reinforced class of pronouns (the personal pronouns I and We). For the next 60 trials, E continued to record pronoun selection but, for experimental Ss, responded by saying "good" immediately following sentences that began with an "I" or "We". For these Ss, administration of the reinforcing stimulus was contingent solely on pronoun selection. During the last 60 trials, control Ss received a predetermined random or non-contingent schedule of reinforcement. Each control S received a different random schedule but the same total number of reinforcements. Other than the scheduling of reinforcement, control and experimental Ss were treated in an identical fashion. Following the conditioning phase, interviewers met with

each S to administer the Spielberger (1962) awareness questionnaire and a Semantic Differantial Scale.

Results

The main dependent measure for this study was the frequency of I and We pronouns selected by Ss over trials. For purposes of analysis, the 80 separate trials were collapsed into four blocks of 20 trials each and Ss' scores corresponded to the number of I and We responses emitted during each block of trials. The first (nonreinforced) block constituted a baseline measure. Comparison of the baseline scores of control and experimental Ss indicated that the two groups were essentially comparable ($t < 1$). Analysis of variance of the acquisition scores revealed a significant trials or conditioning effect ($F = 3.95$, df 3/198, $P < .01$) and a significant groups-by-trials interaction ($F = 5.16$, df 3/198, $p < .005$) indicating that a significant proportion of variance in the overall conditioning effect was due to performance changes in experimental Ss whereas control showed essentially no change over acquisition trials.

In order to determine whether the I-E status of Es or Ss were associated with the significant conditioning effect analysis of variance with repeated measures were made using difference scores (baseline substracted from first and from last acquisition trial block scores) as the dependent measure. As predicted, ESs showed a significantly greater increment in emission of reinforced responses than ISs ($F = 4.67$, df 1/44, $p < .05$). A separate comparison indicated that the performance level of ISs during acquisition was comparable to that of randomly reinforced controls ($F < 1$), i.e., no conditioning. The I-E status of E was not reliably related to acquisition scores or to the performance differences of ISs and ESs ($F < 1$).

In order to examine the possibility that differences in performance of ISs and ESs was due to differences in number of aware Ss, responses to questions on the Spielberger interview were submitted to two judges who independently scored them for awareness. The criterion for scoring awareness was a statement of the correct response-reinforcement contingency. On the basis of this criterion, 23 Ss were classified as aware and 25 as unaware. Interjudge agreement was 95%. Aware Ss were then sorted into a four-fold contingency table with I-E status of S and E as the two defining dimensions. Thirteen members of the IS group had been classified as aware and 10 in the ES group. Seven of the aware ISs had been seen by IEs and 6 by EEs. Analysis of these frequencies indicated that there was no demonstrable association between incidence of awareness and I-E status of either S or E ($\chi^2 < 1$). Thus, the previously noted performance differences could not be attributed to differences in the number of Ss reporting awareness in the two groups.

An unweighted means analysis of variance was made to determine whether reports of awareness were related to acquisition performance. The two orthogonal factors for this analysis were awareness (aware versus unaware) and I-E status of S (IS versus ES). This analysis revealed that aware Ss emitted significantly more reinforced responses during acquisition than unaware Ss ($F = 4.41$, df 1/44, $p < .05$), while the latter group, on the basis of a separate analysis, evidenced no conditioning, i.e., performed the same as the randomly reinforced controls (F 1). More importantly, however, a significant interaction between awareness and I-E status of S ($F = 4.10$, df 1/44, $p < .05$) was obtained indicating that aware ESs had accounted for the performance gains of aware Ss. Aware ISs performed essentially the

same as unaware Ss and controls. As evidence of the strength of the relationship between conditioning and I-E status, correlations between I-E Scale scores and S's performance on the last block of acquisition trials were computed for aware and unaware Ss separately. The I-E Scale scores of unaware Ss were uncorrelated with their final conditioning performance ($r = .09$) but were significantly related to conditioning for aware Ss ($r = .54$, $p < .01$).

The incentive value of the reinforcer was assessed from ratings Ss made to the question "How much did you want the experimenter to say 'good'?" Ratings were dichotomized into Ss who expressed some desire (i.e., either "some" or "very much") and those who reported no desire ("not at all") for the reinforcer. There was no significant difference in the frequency of ISs and ESs in these two categories ($\chi^2 = 2.09$), but when awareness was taken into account, significantly more aware ESs expressed some desire for the reinforcement than aware ISs ($\chi^2 = 3.97$, df 1, $p < .05$). In the unaware group, S's I-E status was not associated with ratings of desire for the reinforcer ($\chi^2 < 1$). These data, from the private reports of Ss, are consistent with the previously noted performance differences between ISs and ESs. That is, aware Ss who evidenced the greatest performance gains, the ESs, indicated that the reinforcer had greater incentive or motivational value for them than aware Ss who showed no change in emission of reinforced responses, the ISs. Also, desire for the reinforcer was not related to I-E status of E for either aware or unaware Ss.

Ratings on the Activity, Potency, and Evaluative dimensions of the Semantic Differential were submitted to separate two-way analyses of variance with S and E I-E status as the independent factors. Analysis of the

Evaluative dimension ratings produced no significant main or interaction effects (all Fs<1). On the Activity dimension, however, ESs rated their Es (irrespective of I-E status) significantly higher than ISs ($F = 4.93$, df 1/44, $p<.05$). Analysis of the Potency ratings indicated that the IEs were rated significantly higher on this dimension than EEs ($F = 5.84$, df 1/44, $p<.025$) by all Ss. None of the other Fs for these analyses approached critical value.

Discussion

The results of this study support the I-E dimension as a predictor of individual differences to social influence conditions. Several aspects of the results merit some comment.

First, the ability to identify the correct contingency (awareness) was significantly related to S's performance in verbal conditioning. The group of Ss classified as aware evidenced significant performance gains while unaware Ss and controls showed essentially no change. There was no evidence to support the contention that "learning without awareness" is a demonstrable phenomenon (e.g., Dixon and Oakes, 1965). This conclusion must be qualified, however, by the unerstanding that post-experimental reports cannot be construed as perfectly correlated indices of cognitive states (e.g., aware or not) that were presumed to exist during conditioning (Krasner and Ullmann, 1963; Maltzman, 1967). Furthermore, there is evidence that the awareness assessment device itself may bias reports by suggesting awareness to some Ss (Doctor, 1968).

While performance gains were confined primarily to the aware group, differential effects within the aware group were associated with S's I-E status. It was evident that aware ESs accounted for the majority of vari-

ance in conditioning. Aware ISs, unaware Ss and controls maintaned comparable response rates and showed essentially no change in emission of reinforced responses over trials. These results would support findings from complimentary experimental settings which suggest that ESs and ISs respond differently in situations that involve subtle forms of interpersonal or social influence. In particular, ISs tend to be nonresponsive or resistive to subtle influence attempts whereas ESs are typically compliant, cooperative, and responsive. These behavioral differences have been identified in a sufficient number of studies as to constitute a reliable phenomenon (Crowne and Liverant, 1963; Getter, 1966; and Gore, 1962). Perhaps an interesting line for future research would be to identify social learning factors that lead to these individual differences.

Contrary to the initial hypothesis, I-E status of E did not affect Ss' performance in verbal conditioning. This result runs counter to studies of attitude change (Phares, 1965) and experimenter expectancy (McFall, 1967), for example, that report significant E effects associated with I-E status. There is no doubt that the EE and IE groups were markedly distinct. First, their I-E scores were completely nonoverlapping and at opposite ends of the dimension. Secondly, the Semantic Differential ratings from Ss indicated that IEs and EEs were perceived quite differently. Even though the interaction was highly structured and lasted only about fifteen minutes, IEs were perceived as significantly more potent than EEs. This findings accords with theoretical (Rotter, 1966), psychometric (Butterfield, 1964), and experimental reports (Phares, 1965) which emphasize such "potency" related characteristics as "goal-directedness," "self-confident," "controls own destiny," and so on, in describing the internally oriented individual.

Summary

In this study, the "control of reinforcement" dimension was used to generate differential predictions about S responsiveness to subtle social influence and E effectiveness in producing change in verbal behavior. As predicted, "external" control Ss, selectively reinforced in a sentence construction task, evidenced significantly greater performance gains than "internal" Ss. When reports of awareness were used to further subdivide Ss, it was found that aware externals accounted for the conditioning effect whereas aware internals, unaware Ss, and controls were comparable and showed essentially no change in performance. These differences were interpreted as being due to the internal's resistiveness to subtle forms of influence. The anticipated E effect was nonsignificant. Consideration of the control of reinforcement dimension as an important determinant of responsiveness to social influence in certain situations was emphasized.

References

Butterfield, E. C. Locus of control, test anxiety, reactions to frustration, and achievement attitudes. Journal of Personality, 1964, 32, 298-311.

Crowne, D. P. & Liverant, S. Conformity under varying conditions of personal committment. Journal of Abnormal and Social Psychology, 1963, 66, 547-555.

Doctor, R. M. Bias effects and awareness in studies of verbal conditioning. Unpublished doctoral dissertation, University of Illinois, 1968.

Dixon, P. W. & Oakes, W. F. Effects of intertrial activity on the relationship between awareness and verbal operant conditioning. Journal of Experimental Psychology, 1965, 69, 152-157.

Getter, H. A personality determinant of verbal conditioning. Journal of Personality, 1966, 34, 397-405.

Gore, Pearl Mayo. Individual differences in the prediction of subject compliance to experimenter bias. Unpublished doctoral dissertation, Ohio State University, 1962.

Kanfer, F. H. Verbal conditioning: A review of its current status. In Dixon, T. R. & Horton, D. L. (Eds.), Verbal Behavior and General Behavior Theory. New Jersey: Prentice-Hall, inc., 1968.

Krasner, L. & Ullmann, L. P. Variables affecting report of awareness in verbal conditioning. The Journal of Psychology, 1963, 56, 193-202.

Lefcourt, H. M. Internal versus external control of reinforcement: A review. Psychological Bulletin, 1966, 65, 206-220.

McFall, R. M. Unintentional communication: expectancy effects as a function of subject and experimenter personalities, and subject's acceptance of interpersonal influence. Unpublished manuscript, University of Wisconsin, 1967.

Maltzman, I. Awareness: cognitive psychology vs. behaviorism. Journal of Experimental Research in Personality, 1966, 1, 161-165.

Phares, E. J. Internal-external control as a determinant of amount of social influence exerted. Journal of Personality and Social Psychology, 1965, 2, 642-647.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80, No.1.

Seeman, M. Alienation and social learning in a reformatory. American Journal of Sociology, 1963, 69, 270-284.

Seeman, M. & Evans, J. W. Alienation and learning in a hospital setting. American Sociological Review, 1962, 27, 772-783.

Spielberger, C. D. The role of awareness in verbal conditioning. In Eriksen, C. W. (Ed.) Behavior and Awareness, Durham: Duke University Press, 1962, Pp. 73-101.

Taffel, C. Anxiety and the conditioning of verbal behavior. Journal of Abnormal and Social Psychology, 1955, 51, 496-501.

1. This paper was presented at the Western Psychological Association Convention, San Francisco, California, 1971.

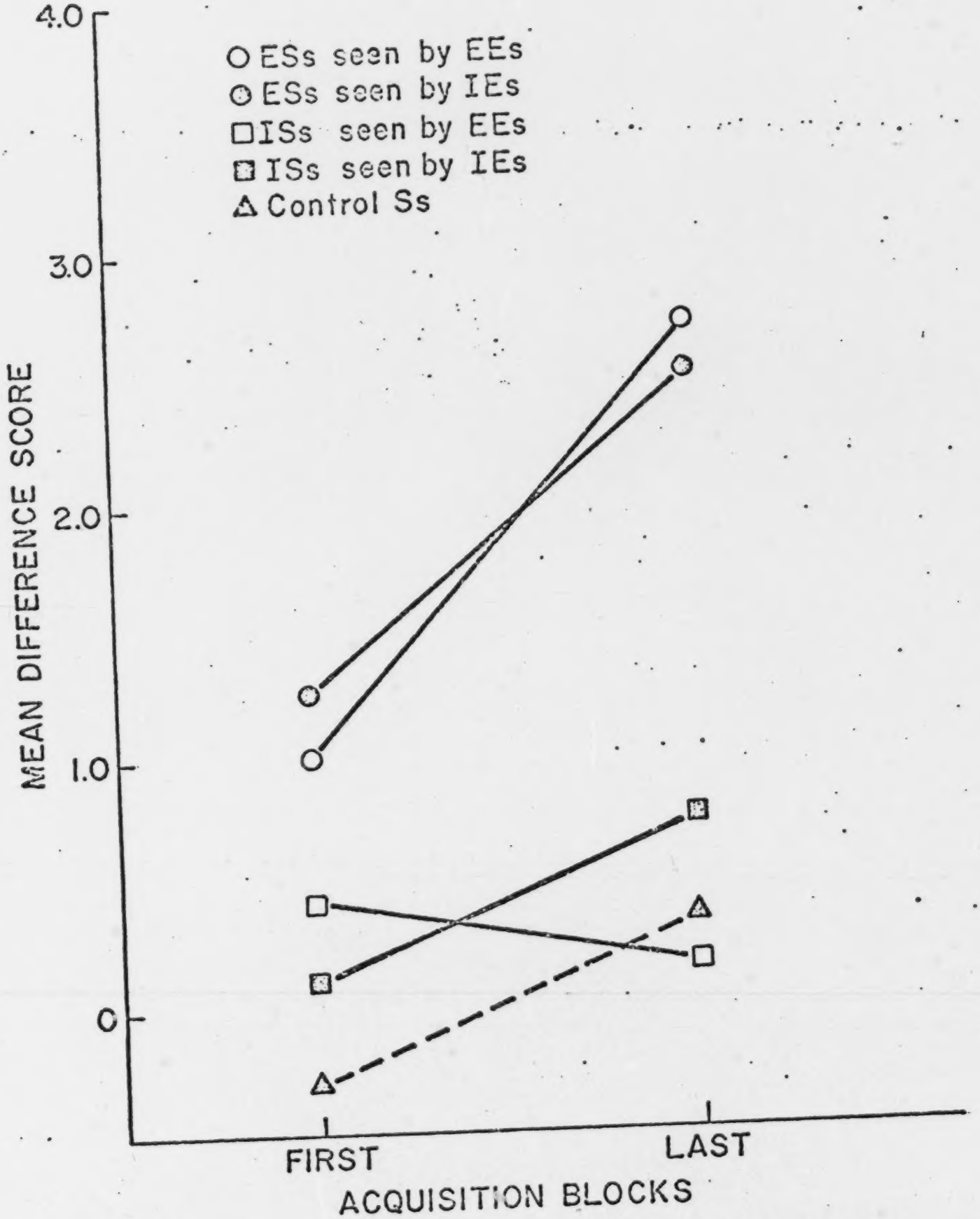

FIGURE 1. Mean difference scores for experimental groups and controls on first and last acquisition blocks.

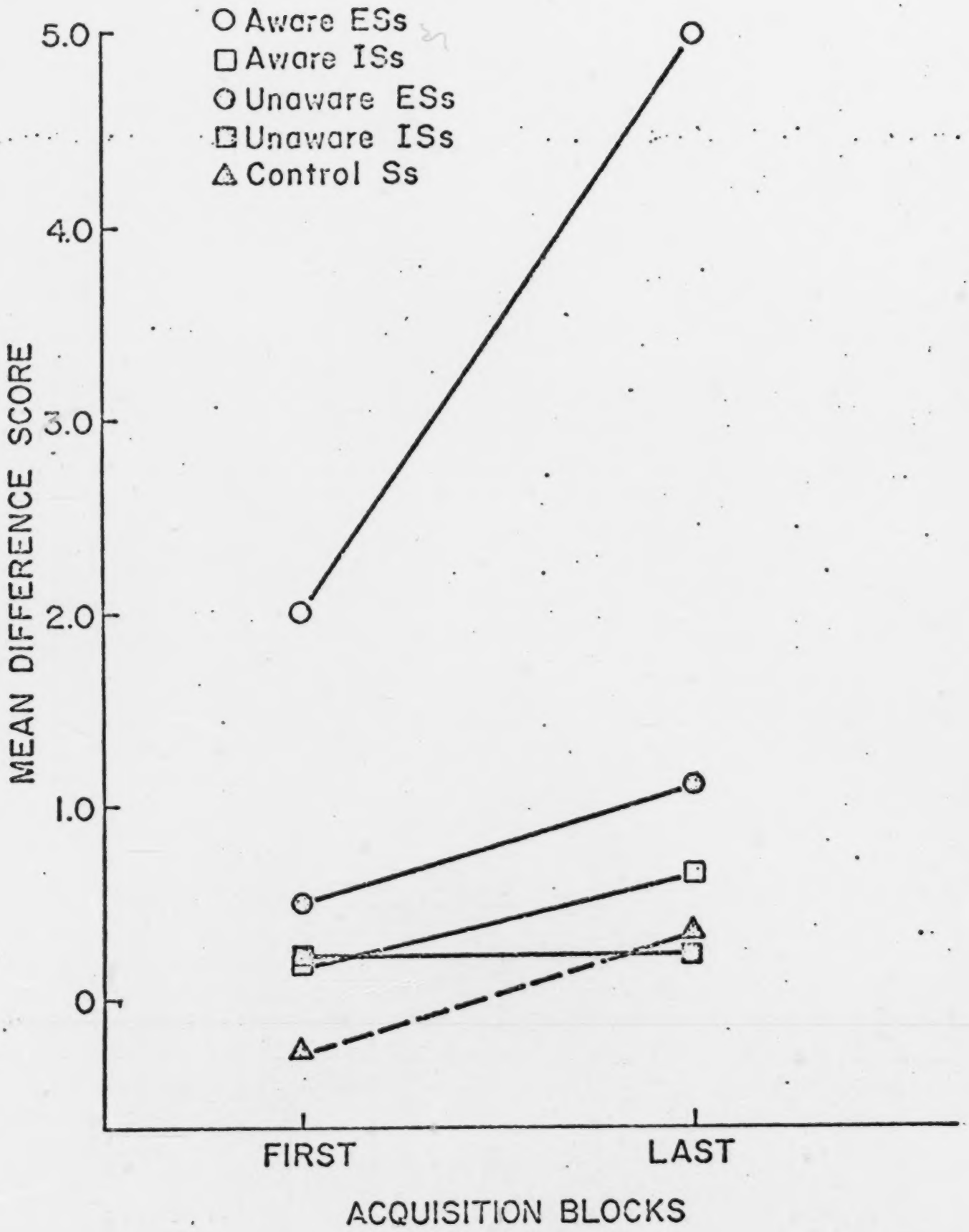

FIGURE 2. Mean difference scores for aware and unaware Ss in IS and ES groups on first and last acquisition blocks.